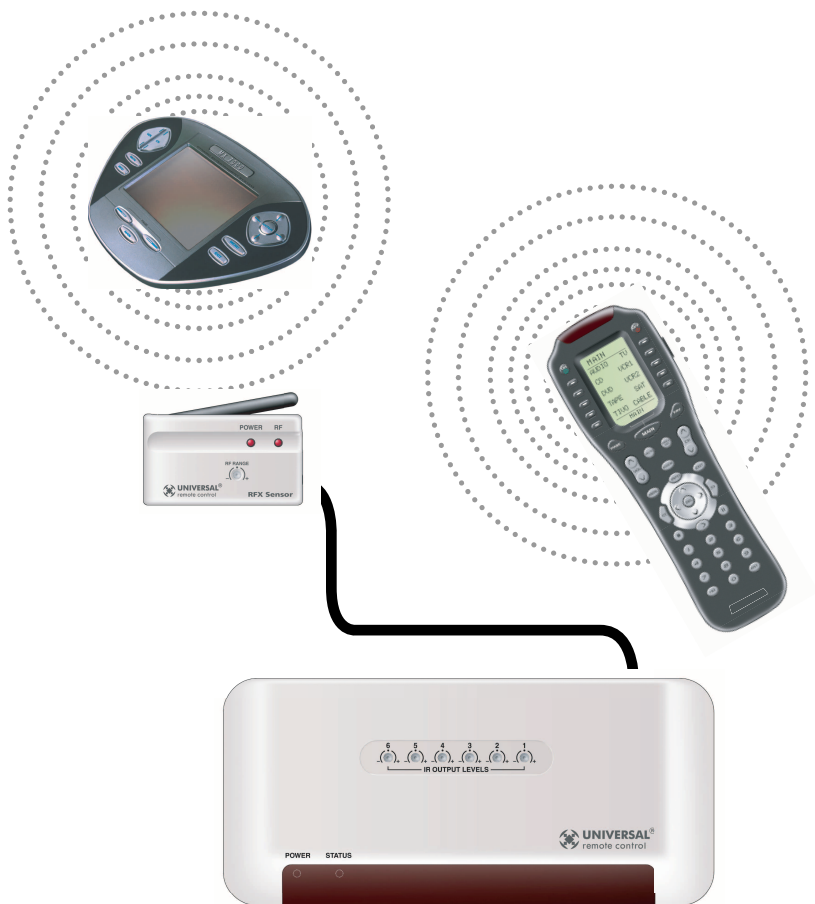


# MRF-300/RFX150 INSTALLATION MANUAL



*Multi-Zone RF Base Station for the MX-3000, the Aurora™, the Aeros™, the Omega™ and the Osiris™ remote controls.*

 **Universal Remote Control**

*MRF-300 Installation Manual ©2005 Universal Remote Control, Inc.*

*The information in this manual is copyright protected. No part of this manual may be copied or reproduced in any form without prior written consent from Universal Remote Control, Inc.*

*UNIVERSAL REMOTE CONTROL, INC. SHALL NOT BE LIABLE FOR OPERATIONAL, TECHNICAL OR EDITORIAL ERRORS/OMISSIONS MADE IN THIS MANUAL.*

*The information in this manual may be subject to change without prior notice.*

*Complete Control, Aurora, Aeros, Omega and Osiris are registered trademarks of Universal Remote Control, Inc.*

*All other brand or product names are trademarks or registered trademarks of their respective companies or organizations.*



**Universal Remote Control®**

500 Mamaroneck Avenue, Harrison, NY 10528

Phone: (914) 835-4484 Fax: (914) 835-4532

<u>Introduction</u>	<u>1</u>
<u>Features and Benefits</u>	<u>2</u>
<u>Parts Guide</u>	<u>2</u>
<u>Installation</u>	<u>3</u>
<u>Front Blaster Overload</u>	<u>7</u>
<u>Disabling the Front Blaster - Step by Step</u>	<u>7</u>
<u>Controlling An Array of Identical Components or Zones</u>	<u>8</u>
<u>Identical Components/Zones - Step by Step</u>	<u>8</u>
<u>Programming For Multiple Equipment Locations</u>	<u>11</u>
<u>Frequently Asked Questions</u>	<u>12</u>
<u>Warranty</u>	<u>12</u>
Specifications	12

## Introduction

The MRF-300 base station is an “addressable” base station. It is only compatible with Universal Remote Control’s line of Custom Programmed Remotes with RF Addressing such as the MX-3000, the MX-950 Aurora, the MX-850 Aeros, the MX-800, MX-650 Omega and the MX-350 Osiris. RF Addressing gives you the ability to control as many as 90 identical components throughout a house.

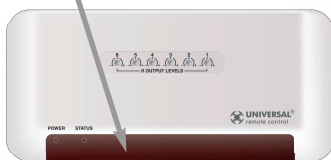
1. URC “Addressable” remote controls send radio waves in every direction, so you don’t have to point the remote anymore!



2. The RFX-150 RF Sensor can be freely positioned out of way of the interference the A/V components create, connecting to the MRF-300 via a 10' cable (which can be extended).



3. The MRF-300’s built-in Front Blaster sends commands to components in the same cabinet space as the MRF-300.



4. Self-adhesive “Flashers” affix to the Infrared sensors on the front panels of your components. The Flashers relay commands to components out of sight of the MRF-300’s Front Blaster. The flashers plug in to the MRF-300’s rear flasher line outputs via their 10 foot cables. Uniquely, the MRF-300 can also connect to rear panel IR Inputs via its adjustable IR Line Outputs.

## Features and Benefits

### **Interference Rejection and Adjustable RF Range via RFX-150**

The MRF-300 receives RF (radio frequency) signals via the RFX-150 RF Sensor. The RFX-150 displays RF interference via a bright RED LED, which flickers when interference is present. Simply relocate the RFX-150 out of the interference or reduce the range to eliminate interference via the RF Range adjust screw.

### **Expand Range by Adding RFX-150 RF Sensors in Remote Areas**

The MRF-300 can power up to three RFX-150 RF Sensors connected in parallel to the RF Input connector.

### **Variable IR Output Matches Rear Panel IR Inputs**

The MRF-300 is equipped with adjustable IR line outputs, each output can be individually matched to rear panel IR inputs on any component that is designed to be operated by a standard IR repeater. The outputs utilize a 3.5mm jack.

### **Up To Fifteen Equipment Locations With Identical Components**

Each URC MX series “addressable” remote control can be programmed to specifically control components in a particular room, by installing a base station at each location. In operation it’s simple: when you select a device located in the Den, the MX series remote only sends commands to the Den. When you select a device located in the Family Room, the MX-3000 only sends commands to it.

### **A Single MRF-300 Can Control an Array of Identical Components or Identical Zones of a Multi Zone Preamp/Matrix Switcher**

Each MRF-300 has six “addressable” IR Line Outputs. For example, you can control up to six identical TV’s with one MRF-300 or route volume commands for a specific zone to a particular zone IR input on a multi-zone preamp. If you have more than six identical components or zones, up to 15 additional MRF-300’s can be installed to control them (thus allowing up to 90 identical components or zones in one house).

### **IR Input for Keypads or IR Repeater Systems**

The MRF-300’s rear panel IR input will relay IR Data from IR repeaters or Multi-Zone Keypads to all IR line outputs (does not support IR routing). The 5V, 100 milliamp output will directly power some brands and models of keypad directly.

## Parts Guide

The MRF-300 RF Base Station includes:

- 1 - RFX-150 RF Sensor with integrated antenna
- 1 - MRF-300 Base Station
- 1 - Mounting Plate for wall mounting the MRF-300
- 4 - Screws for wall mounting the mounting plate
- 1 - 9V-300mA Power Supply
- 6 - Visible Flashers with 10 foot plug in cables.
- 1 - 10’ cable with Tinned leads to 3.5 mono mini plug (connects RFX to MRF)
- 1 - 10’ cable with 3.5 to 3.5 (connects MRF to MRF for expansion)
- 1 - RF Adjustment Tool (Screwdriver for RFX-150 adjustment)

## Installation

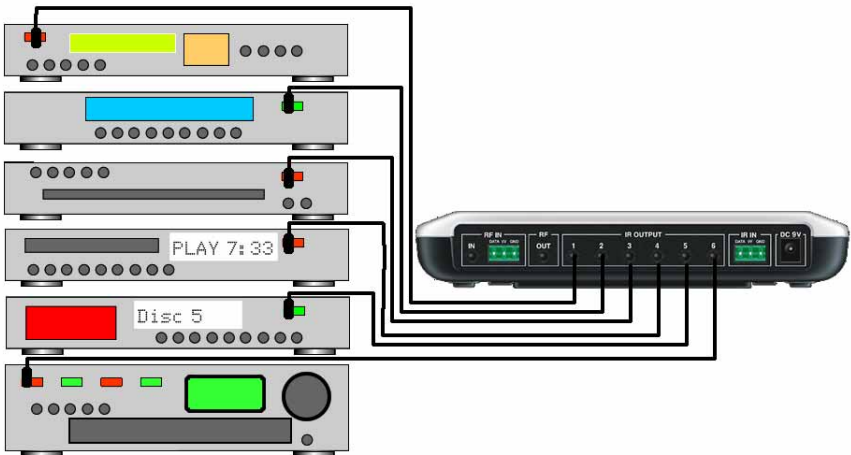
**Step 1 - Set the RF ID #** rotary switch on the bottom of the MRF-300 to a VALID ID# (any address other than ID# 0). If you leave it set to ID# 0, the MRF-300 operates with some restrictions:

- a. Accepts RF signals from any 418MHz remote control regardless of the address set when programming the remote control.
- b. Front Blaster will be OFF and all IR line outputs are set to ALL).



Slide off the mounting plate to reveal the RF ID# rotary switch. Use a small flat blade screwdriver to set the RF ID# to the address you used when programming the remote control (1-9 or A-F are valid addresses, while 0 is not a valid address).

**Step 2 - Mount or place the MRF-300 conveniently and run flashers to each component's front panel sensor or connect the Line Out to a components rear panel IR Input.**



Copper colored conductor is GROUND (Sleeve of the Plug).

Silver colored conductor is IR DATA (Tip of the Plug).



When connecting to a components rear panel IR Input, cut the flasher off of the wire, strip the two conductors and connect to the rear panel IR Input. The MRF-300 is only compatible with standard IR Inputs, not proprietary control systems such as Control S.

### Daisy Chain Multiple MRF-300's to One RFX-150 RF Sensor

Use the cable with 3.5mm Stereo Mini plugs on both ends to daisy chain as many MRF-300's as you need. Simply connect the RF OUT of the first to the RF IN of the next and so on down the line.

By daisy chaining MRF-300's, you can easily control up to 90 identical components.



RF OUT of the RFX-150 to the RF IN of the MRF-300.



RF OUT of the first MRF-300 to the RF IN of the next MRF-300.

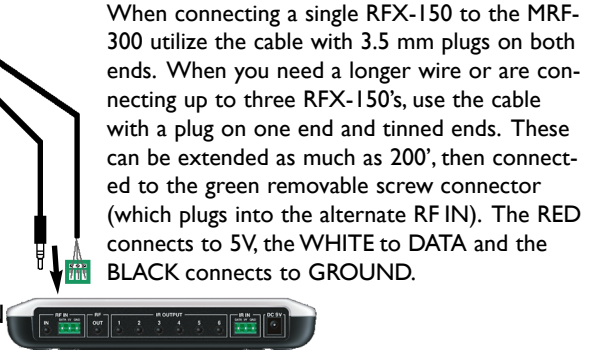


### Step 3 - Connect the RFX-150 to the RF IN, but DO NOT MOUNT IT!



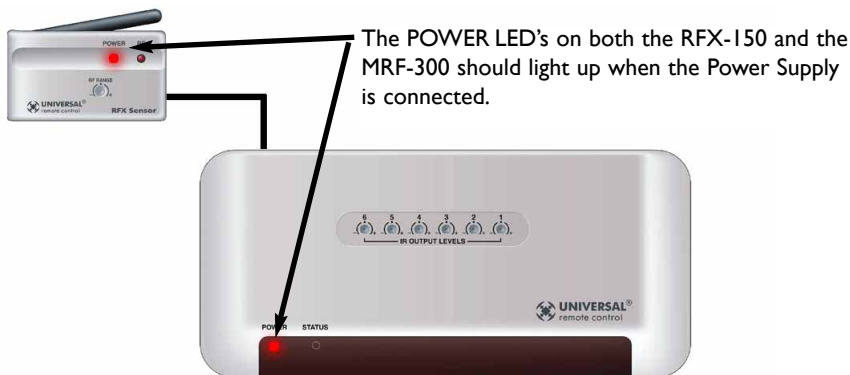
Plug the 3.5mm plug into the RFX-150's RF OUT jack.

Connect the other end of the cable to one of the two RF IN on the MRF-300,

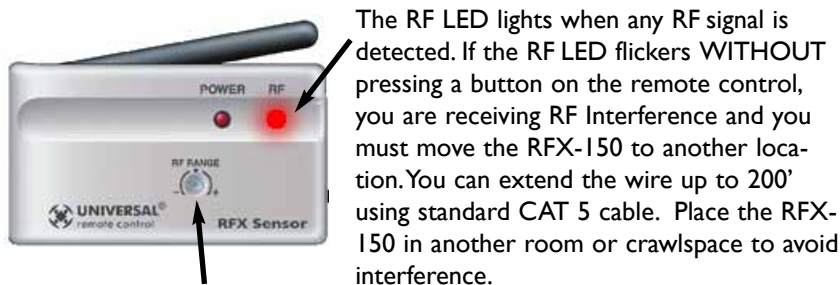


When connecting a single RFX-150 to the MRF-300 utilize the cable with 3.5 mm plugs on both ends. When you need a longer wire or are connecting up to three RFX-150's, use the cable with a plug on one end and tinned ends. These can be extended as much as 200', then connected to the green removable screw connector (which plugs into the alternate RF IN). The RED connects to 5V, the WHITE to DATA and the BLACK connects to GROUND.

**Step 4 - Connect the Power Supply to the MRF-300.**



**Step 5 - Power on the entire Audio/Video System  
Test for RF Interference**

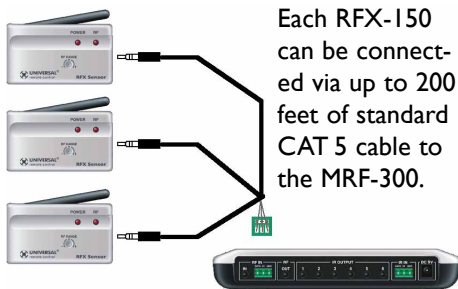


If you are restricted to a very small range of mounting locations and the LED flickers, reduce the range via the RF Range attenuator screw on the RFX-150.

**Step 6 - Mount the RFX-150 and adjust for Optimum Range**

Have someone press buttons on the remote control from the farthest distant operating position and adjust RF range screw and the angle of the RF-150 receiving antenna until the RF LED lights with every button push.

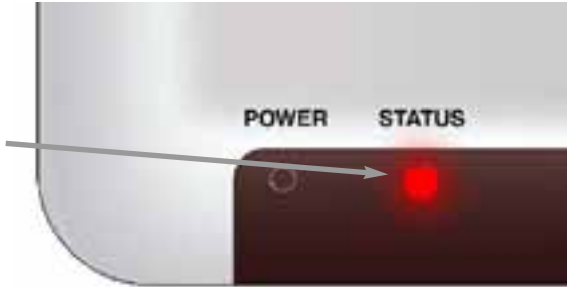
If the desired range cannot be reliably maintained, you can opt to extend range by adding another RFX-150 RF Sensor in a location closer to the area where reception is unreliable. Each RFX-150 can provide coverage of 50 to 100 feet in normal conditions. Up to three RFX-150 Sensors can be connected.





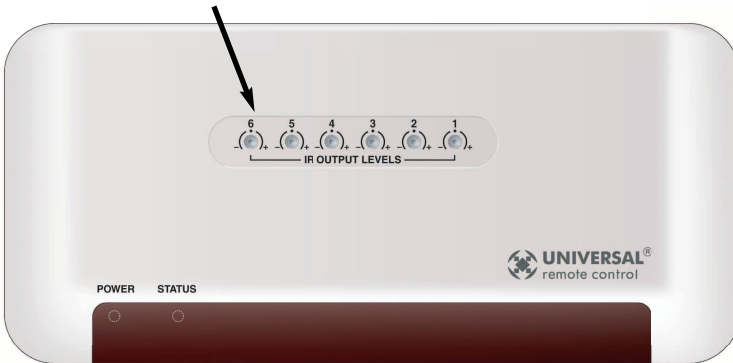
### Step 7 - Test RF Address

Test that pressing a button on the remote control lights the STATUS LED of the MRF-300. The STATUS LED only lights when the correct RF address is received.



### Step 8 - Adjust IR Line Output Levels

Adjust each of the IR Line Output levels for best operation.



**NOTE:** TiVo, Replay TV, Satellite Receivers and Cable Boxes are all extremely sensitive to IR overload or saturation. Put up the on screen guide and test the navigation arrows. If operation is inconsistent or sluggish, LOWER the IR line output.

If you still have sluggish operation, check that the remote control is set to a particular LINE OUT, rather than ALL. When IR commands are sent to all the flashers in a cabinet, you can have difficulty adjusting the IR Output.

Reprogram the remote control to send IR commands only via a specific (1-6) Line Output, then readjust the IR Line Output level.

## Front Blaster Overload

A few models of audio/video components can be OVERLOADED by the Front Blaster. If you are having intermittent or inconsistent results with a particular component, try repositioning the MRF-300 and facing the Front Blaster in a different direction. If this improves the situation but is impractical, it may be necessary to utilize the self-adhesive flashers only and follow the steps below to Disable the Front Blaster. This will limit the number of components your MRF-300 can control to six. If you have more than six components you can purchase an additional MRF-300.

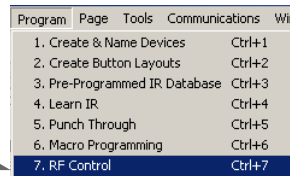
## Disabling the Front Blaster - Step by Step via PC

**Note:** If you are programming a URC MX “addressable” remote control that sets up without a PC, refer to the owners manual to disable the Front Blaster.

Open the PC software, then plug the MX PC programmable remote control into the PC. Open your saved configuration and follow these steps to turn off the front blaster:

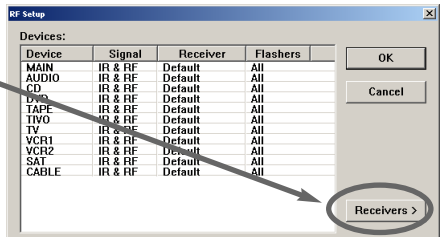
### Step 1 - Open the RF Setup Window

The RF Setup window opens after selecting RF Control from the Program Menu.



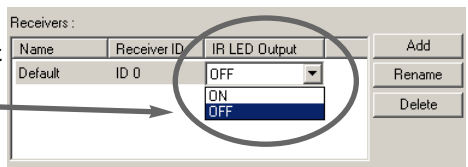
### Step 2 - Setup the Receiver

Extend the RF Setup window by clicking on the Receivers button.



### Step 3 - Turn off the Front Blaster

Click on the cell in the IR LED OUTPUT/IR BLASTER column. A list box will appear. Select OFF from the list.



Next, click on OK to apply your change.

SAVE your changes using File|Save and DOWNLOAD to the remote control.

## Controlling An Array of Identical Components or Zones

There are several considerations to take into account when you are installing an MRF-300 to control an array of identical components:

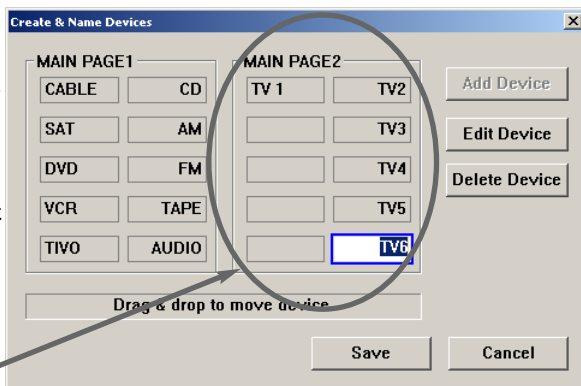
1. The RF ID# cannot be set to Code 0, the universal setting. You must use one of the fifteen unique IR Routing addresses.
2. Each identical component must receive IR commands ONLY from a dedicated Flasher affixed to its front panel or a rear panel direct IR input. The SIGNAL of the remote should be set to RF ONLY for each identical component. IR can still be utilized for other devices in your system!
3. You must note the NUMBER of the Flasher Output you have utilized for EACH of the identical components.
4. When you use a wired connection to a component's rear panel IR input, you must cut off the LED emitter, strip the two conductors, connect the copper conductor to the DATA input and the silver colored conductor to the GROUND connector of the component's rear panel IR input. Then adjust the line output of the MRF-300 for the best performance if needed.

### Identical Components/Zones - Step by Step via PC

**Note:** If you are programming a URC MX "addressable" remote control that sets up without a PC, refer to the owners manual for setup of identical components.

#### Step 1 - Create a Device for Each Component/Zone in the MX Editor Software.

In this example, six identical TV's are utilized in a Media Room array. The programmer has created devices for all of the equipment in the cabinet on Main Page 1. On Main Page 2, he/she has created a device for each of the TV's.

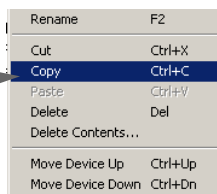


#### Step 2 - Program One Device With IR commands.

Using either the IR Database or Learning, program one of the identical devices to operate one of TV's (leave the others powered off right now). Test all commands, correct if necessary, then click on SAVE from the FILE menu.

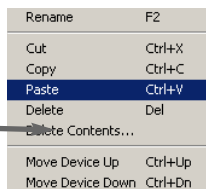
### Step 3 - Copy The Programmed Device

In tree view, right click on the device you programmed. From the context menu that appears, select COPY.



### Step 4 - Paste The Programmed Device

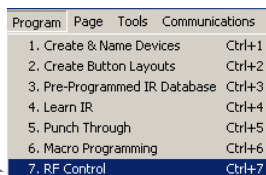
In tree view, right click on the first device that is NOT PROGRAMMED. From the context menu that appears, select PASTE.



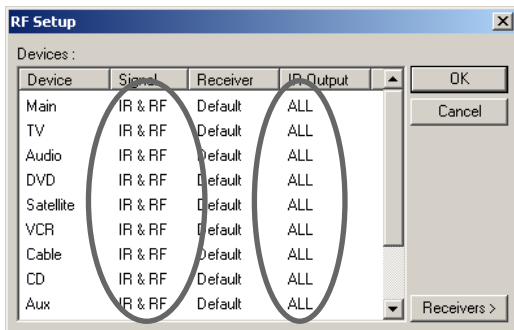
Repeat this PASTE on all of the other identical device. Save your work.

### Step 5 - Open the RF Setup Window

The RF Setup window opens after selecting RF Control from the Program Menu.



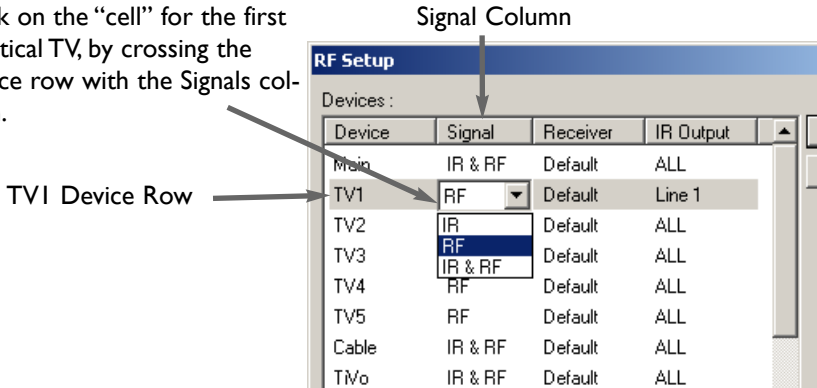
The RF Setup window is composed of a “spread sheet” of options for EACH of your devices. By looking at the Signal column, you can see that the factory default programming sets all of the devices to send both IR and RF commands. If you look at the column for Flashers, you can see that the default sends IR commands for all devices to ALL of the flashers. Both options must be changed for identical components. Additionally, if you are not using it, you may wish to disable the Front Blaster (see page 7 for directions).



### Step 6 - Adjust the Signal For Each of the Identical Devices

The RF Setup window enables you to adjust the Signal output for each device individually, by clicking on the intersection of a row and a column and then selecting RF from the three options shown in the pull down list box .

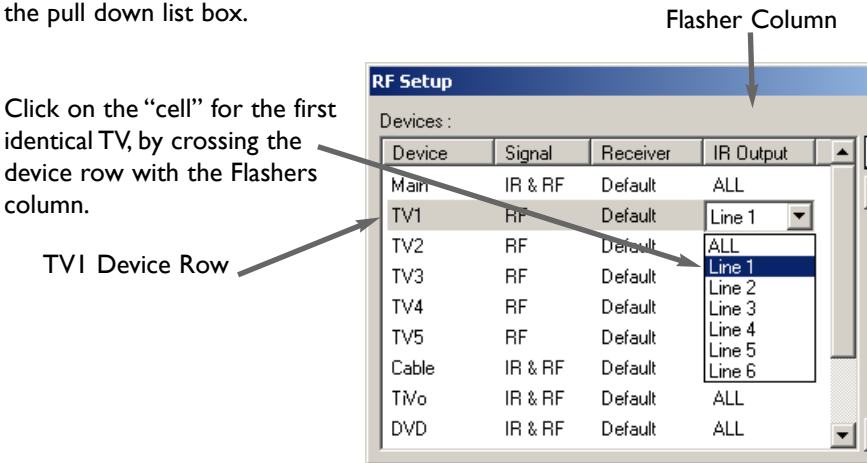
Click on the “cell” for the first identical TV, by crossing the device row with the Signals column.



Select RF from the three options shown for EACH of the identical TV's. You may leave the other components of the system set to IR & RF.

### Step 7 - Adjust the Flashers For Each of the Identical Devices

The RF Setup window enables you to adjust which Flashers output by the remote control for each device individually, by clicking on the intersection of a row and a column and then selecting 1-6 from the seven options shown in the pull down list box.



Select the correct Flasher (refer to your connection notes) for EACH of the identical TV's. You may leave the other components of the system set to ALL.

### Step 8 - Apply, Save, Download and Test

First click on the OK button of the RF Setup window. Next, Save your work. Finally, download to your remote. When you select TV1 with your remote, commands are only sent to it. Likewise for the rest of your identical TV's!

## Programming For Multiple Equipment Locations

You can operate up to 15 different equipment locations, each with an MRF-300 assigned a unique Receiver ID#. You program each of your remotes to talk to the equipment locations you want by assigning each of your devices to a receiver. First, you must add and name your receivers for the locations they are placed in:

### Step 1 - Open the RF Setup Window in MX Editor

The RF Setup window opens after selecting RF Control from the Program Menu.

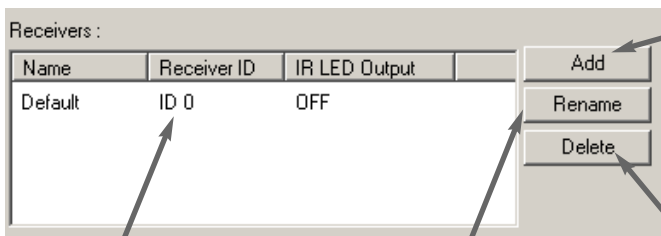
Program	Page	Tools	Communications	Wl
1. Create & Name Devices				Ctrl+1
2. Create Button Layouts				Ctrl+2
3. Pre-Programmed IR Database				Ctrl+3
4. Learn IR				Ctrl+4
5. Punch Through				Ctrl+5
6. Macro Programming				Ctrl+6
7. RF Control				Ctrl+7

### Step 2 - Reveal the Receiver settings

Extend the RF Setup window by clicking on the Receivers button of the RF setup window.

### Step 3 - Add, Name and Assign Receiver ID#

Using the controls at the bottom extended portion of the RF Control window, add new receivers and rename them for the

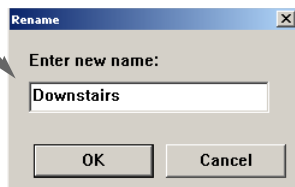


Add new receivers by clicking on the Add button.

Delete receivers by selecting them first by clicking on their Name, then clicking the Delete button.

Assign the correct Receiver ID# for each LOCATION by clicking on the desired CELL and selecting the ID# you want from the pull down list. Each LOCATION should have a unique ID#. It is ok to install multiple MRF-300's in one location.

You may rename the Default receiver to something more descriptive by clicking on the Rename button.



### Step 4 - Save and Download to your remote.

## Frequently Asked Questions

### **Can I use flasher/emitters that I have already installed in the system to connect to the MRF-300?**

Yes, the flashers are compatible if they use 3.5mm mono mini plugs with the same polarity (Tip is data, sleeve is ground).

### **I am getting inconsistent operation regardless of flasher level or position.**

Some components are easily overloaded with IR from nearby flashers. Prevent IR from affecting the problem component from other flashers or the front panel blaster by setting the device to a specific IR Line Output instead of ALL, then adjust the Line Output.

### **I have a row of identical TV's. I've correctly set the flasher outputs using the Editor software, yet when I send a command to one of them, the TV next to the selected TV also responds. How do I stop this?**

First, check the RF ID#, if the RF ID# is set to 0, IR routing does NOT work. The RF ID# from 1-9 or A-F must be set on both the remote control and the bottom of the MRF-300. Second, check that an opaque material like electrical tape is used to cover the flasher and the front panel sensor of each of the TV's. Sometimes several layers are necessary.

### **How can I increase the range of the remote control?**

Often, you can increase range by adjusting the range screw and/or repositioning the RFX-150. If you still can't get the range you need, consider installing additional RFX-150 RF Sensors in the areas with poor range by concealing wire runs to nearby attic or crawl space locations.

## Warranty

The MRF-300 is covered against any manufacturers defects or workmanship for a period of one year from the date of purchase if purchased from an authorized Universal Remote Control dealer. Units purchased from online auction sites or other unauthorized resellers have no warranty. This warranty does not cover the following items:

- Damage from misuse, neglect, or acts of nature.
- Products that have been modified or incorporated into other products.
- Products purchased more than 12 months ago.
- Units purchased from unauthorized dealers or companies.

## Specifications

Power Supply: 9V 300mA

IR Flasher Line Outputs: 3.5mm Mono Mini Jack

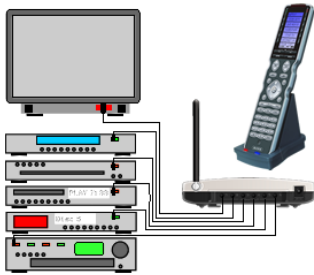
RF Frequency: 418MHz

Size: 8" x 3.5" x 1.25"

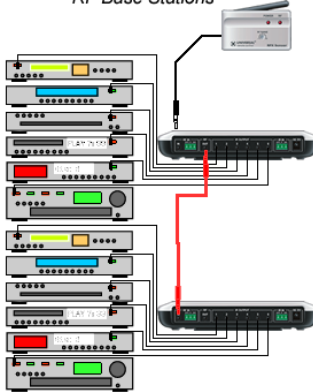
# The Complete Control™

## Remote Control System

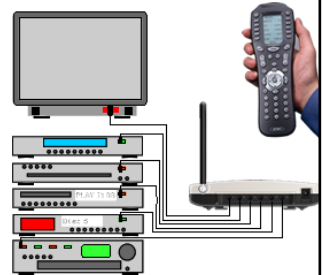
*In the Living Room, the Aurora automates operation for the Living Room system via a local MRF-250 Single Zone RF Base Station AND the central Multi-Zone system.*



**Central Multi Zone System  
Controlled from All Rooms  
Via MRF-300 Multi Zone  
RF Base Stations**



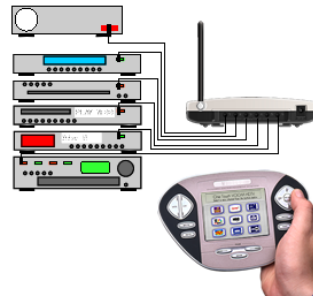
*In the Media Room, the Aeros automates operation for both the Media Room system via a local MRF-250 Single Zone RF Base Station AND the central Multi-Zone system.*



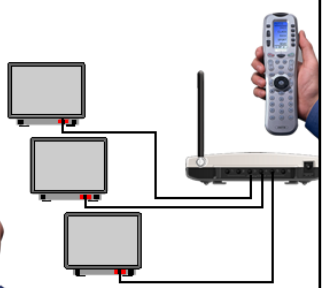
*In the Den, Omega controls both the Den system via a local MRF-250 Single Zone RF Base Station and the central Multi Zone System.*



*In the Home Theater, the MX-3000 Color Touch Screen Automates Theater operation via a local MRF-250 Single Zone RF Base Station and all Zones of the Central Multi-Zone System!*



*In the Bar, Osiris automates both the three TVs in the Bar via a local MRF-250 Single Zone RF Base Station and the central Multi Zone System.*



## Universal Remote Control®

500 Mamaroneck Avenue, Harrison, NY 10528

Phone: (914) 835-4484 Fax: (914) 835-4532

[www.universalsremote.com](http://www.universalsremote.com)